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# SEP 1 5 2003 %

#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

Chun-Hsiang Chiang

**SERIAL NO.:** 09/960,172

**EXAMINER:** Edwin A. Leon

FILED: September 21, 2001

**ART UNIT: 2833** 

FOR: WIRE MANAGEMENT MEMBER AND ELECTRIC CABLE CONNECTOR

WITH WIRE MANAGEMENT MEMBER

ATTORNEY DOCKET NO.: A1-082 US

#### **APPEAL BRIEF FOR APPLICANTS**

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SEP 23 2003



#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants:

Chun-Hsiang Chiang

Application:

WIRE MANAGEMENT MEMBER AND ELECTRIC CABLE

CONNECTOR WITH WIRE MANAGEMENT MEMBER

Serial No.:

09/960,172

Filing Date:

September 21, 2001

Art Unit:

2833

Examiner:

Edwin A. Leon

Case:

A1-082 US

#### APPEAL BRIEF FOR APPLICANTS

This is an appeal from a final rejection of claims 1-15 and 17-22 that are pending in the present application. The final rejection was made in an Official Action issued in connection with the present application on June 26, 2003, from which a Notice of Appeal was mailed on July 10, 2003 and was received by the Patent Office on July 14, 2003. In accordance with 37 C.F.R. § 1.192(c)(9), the claims pending in the present application and involved in this Appeal are set forth in the attached Appendix A.

#### I. REAL PARTY IN INTEREST

The real party in interest is Molex Incorporated, having a place of business at 2222 Wellington Court, Lisle, Illinois 60532. Molex Incorporated is the real party in interest by virtue of an Assignment executed by the applicant on September 1, 2001 and recorded in connection with the present application in the United States Patent and Trademark Office on September 21, 2001 on Patent Reel No. 012206, Frame No. 0635.

#### II. RELATED APPEALS AND INTERFERENCES

Applicant and Molex Incorporated, the assignee of the present application, is

SEP 23 2003

not aware of any other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal of the present application.

#### III. STATUS OF THE CLAIMS

The status of the claims in the present application is as follows:

- 1. Total claims: 1-23.
- 2. Claims canceled: 16.
- 3. Claims withdrawn from consideration but not canceled: None.
- 4. Claims pending: 1-15 and 17-23.
- 5. Claims allowed: 23.
- 6. Claims objected to: None.
- 7. Claims rejected: 1-15 and 17-22.
- 8. Claims appealed: 1-15 and 17-22.

#### IV. STATUS OF AMENDMENTS

The applicant did not file an Amendment Under 37 C.F.R. § 1.116 in response to the June 26, 2003 Official Action finally rejecting claims 1-15 and 17-22, but did file remarks with the U.S.P.T.O.

#### V. SUMMARY OF THE INVENTION

#### A. <u>Background</u>

Electric cable connectors generally comprise a rectangular, electrically insulative connector housing. The connector housing includes a plurality of terminals. The terminals each have a tail extending out of one end of the connector housing and suspending in the open air for soldering to respective wires of an electric cable. Because the tail of each of the terminals is respectively suspended in open air, it is difficult to solder the wires of the electric cable to the tail of each of the terminals, and one wire of the electric cable may be soldered to two or more terminals accidentally.

#### 2. The Invention Of The Present Application:

The present invention provides for an electric cable connector. Referring to Figures 1 through 3, an electric cable connector in accordance with the present invention is generally comprised of a connector 1, a cable 2, and a wire management member 3. The connector 1 comprises an electrically insulative housing 10 having a plurality of outer walls, terminal passageways 12 within the housing and a plurality of terminals 11 respectively inserted into the terminal passageways 12. The electrically insulative housing 10 includes a plurality of locating cavities 14, the purpose of which will be explained later. The tail 110 of each of the terminals 11 respectively extends out of one of the outer walls of the housing 10 for soldering to the cable 2. The cable 2 comprises an electrically insulative jacket 20 and a plurality of wires 21 extended out of the jacket 20. Each wire 21 includes a metal conductor 210 soldered to the tail 110 of each of its corresponding terminal 11.

A wire management member 3 for use with the housing 10 comprises a body portion having a plurality of terminal grooves 30, a plurality of wire grooves 31, and one or more positioning rods 32 extending from an outer surface of the wire management member. In the embodiment shown in Figures 1-3, the positioning rods 32 extend from the front face of the wire management member 3 in a direction generally parallel to the terminal grooves 30. The positioning rods 32 are respectively received within respective locating cavities 14 of the housing 10 of the connector 1, thereby allowing the wire management member to be properly aligned with the body 10, and positively secured thereto. Although terminal passageway 12 and locating cavity 14 are shown in Figure 1 to be joined, terminal passageway 12 and locating cavity 14 can be a separate from each other.

The terminal grooves 30 are adapted to receive the tail 110 of each of the terminals 11. Ribs 33, which may be integrally formed with the wire management member 3,

are located between adjacent terminal grooves 30. The ribs 33 are higher than the elevation of the tail 110 of each of the terminals 11 received within the terminal grooves 30, so that the ribs 33 prevent solder paste from migrating to neighboring terminal grooves 30. One end of each of the terminal grooves 30 is respectively connected to the wire grooves 31. The wire grooves 31 in the embodiment shown have a cross section extending more than 180° for positively positioning and retaining the wires 21 of the cable 2 thereon. Once the wire 21 is properly positioned in its respective wire groove 31, the metal conductor 210 of the wire 21 is properly aligned with the terminal tail 110 to allow the conductor 210 to be soldered to the tail 110.

FIGS. 4 through 6 show an alternate form of the electric cable connector according to the present invention. One notable difference is that the connector shown in Figures 4-6 include more than one row of terminals 110. The housing 10 is molded from an electrically insulative plastic or the like, and includes a plurality of terminal receiving passageways 12, which holds the terminals 11 respectively, keeping the tail 110 of each of the terminals 11 extended out of the rear side of the housing 10 for soldering to the wires 21 of the cable 2. The housing also includes one or more cavities 14.

The wire management member 3 in this embodiment is a body portion including a stepped structure comprising two platforms 34 and 35 disposed at different elevations. The upper platform 34 has a grooved topside. The lower platform 35 has grooved top and bottom sides. Therefore, the wire management member 3 has three grooved faces.

One common end of the platforms 34 and 35 is provided with terminal slots 36 for receiving the terminals 11. Terminal grooves 30 are respectively provided at the platforms 34 and 35 and extended to the terminal slots 36 for the positioning of the tail 110 of each of the terminals 11. The platforms 34 and 35 may be separately made, and then fastened together.

Alternatively, the platforms 34 and 35 can be formed integral with each other. The terminal grooves 30 have a substantially U-shaped cross section. Wire grooves 31 are respectively provided at the platforms 34 and 35 in line with the terminal grooves 30 for receiving the wires 21 of the cable 2. Ribs 33 are provided at the platforms 34 and 35 to separate the terminal grooves 30 from one another and to prohibit migration of solder paste from one terminal groove 30 to another.

#### VI. ISSUES ON APPEAL

This issue on appeal is whether independent claims 1, 9, 15 and 21, and dependent claims 2-8, 10-14, 17-20 and 22 are rendered obvious under 35 U.S.C. § 103(a) by United States Patent No. 6,039,611 ("Yang") in view of Japanese Publication No. 06-231836 ("Yoshihito et al.").

#### VII. GROUPING OF CLAIMS

In rejecting the claims, the Examiner has grouped the rejected claims in a single group. Claim 1 would be representative of the rejected claims.

#### VIII. ARGUMENT

#### 1. <u>Claims On Appeal</u>

All of the claims involved in this Appeal were finally rejected in the Official Action of June 26, 2003 because the Examiner maintained that claims 1-15 and 17-22 were rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 6,039,611 ("Yang") in view of Japanese Publication No. 06-231836 ("Yoshihito et al."). It is the final rejection of those claims that resulted in the filing of this Appeal.

The claims on appeal are set forth in Appendix A. These claims recite various embodiments of a wire management member, a connector using a wire management member or a cable assembly including a connector using a wire management member. The claim

indicated to be representative of the claims on appeal, *i.e.*, claim 1, recites an electrical connector for use with an electrical cable having a plurality of wires. The electrical connector comprises a connector body and a wire management member. The connector body comprises a front side, a rear side, a cavity between the front side and the rear side, a plurality of terminal passageways, and a plurality of terminals respectively received within the terminal passageways. The terminals each have a tail extending out of the rear side of the connector body. The wire management includes a body portion having an end face, and the body portion adapted to support the tail of each of the terminals. The wire management member comprises a projection rod projecting from the end face of the body portion, the projection rod being received within the connector body cavity.

#### 2. <u>The Cited Reference</u>

The Examiner relied on two references in rejecting the appealed claims: United States Patent No. 6,039,611 ("Yang") and Japanese Publication No. 06-231836 ("Yoshihito et al.").

#### A. <u>United States Patent No. 6,039,611 ("Yang")</u>:

Yang discloses an electrical connector. The connector includes a plastic body 1, an insertion body 2, two covers 3, a steel case 4 and two interconnecting cables 7. The body 1 includes an upper and lower row of terminals 11 projected from a front surface of the body, and two rearward extended side walls 12 that extend from a rear end of the body 1. Each side wall 12 includes a guide rail 13 on an inner surface of the side wall. The guide rail 13 is further formed at a suitable position with a retaining hole 14. Two vertically extending insertion slots 15 are provided at inner surfaces of the two side walls 12.

The insertion body 2 includes two protrusions 22 formed at two lateral side surfaces of the insertion body 2 for engaging the retaining holes 14 when the insertion body 2 is assembled to the body 1. The insertion body further includes top and bottom front surfaces

with a plurality of terminals slots 21 corresponding to the terminals 11. When the insertion body 2 is assembled to the rear end of the body 1, rear ends of the terminals 11 are located in their respective corresponding terminal slots 21.

#### B. <u>Japanese Publication No. 06-231836 ("Yoshihito et al.")</u>:

Yoshihito et al. appears to disclose a pair of connectors, one of the connectors 20 including a plurality of terminals 10, and a mating connector 40, the mating connector being used to mate a flat flexible cable to the connector 20.

### 3. The Rejection Under 35 U.S.C. § 103(a) Of Claims 1-15 and 17-22 Should Be Reversed

In the final Official Action of October 10, 2001, the Examiner asserted that claims 1-11 were rendered obvious under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 6,162,099 ("Wu") in view of United States Patent No. 5,984,696 ("Lee"). In so rejecting the appealed claims under 35 U.S.C. § 103(a), the Examiner has apparently misunderstood the invention recited in claim 1 of the present application, as well as the teachings of Wu and Lee, as neither of those references, either alone or combined as suggested by the Examiner, disclose, teach or suggest the subject matter recited in claims 1-11 of the present application. Accordingly, claims 1-11 define a frame connector (and a connector system) that is not disclosed in or suggested by the combination of references suggested by the Examiner in the final rejection, and the Board should reverse the Examiner's 35 U.S.C. 103(a) rejection.

Representative claim 1 recites an electrical connector for use with an electrical cable having a plurality of wires. The electrical connector comprises a connector body and a wire management member. The connector body comprises a front side, a rear side, a cavity between the front side and the rear side, a plurality of terminal passageways, and a plurality of terminals respectively received within the terminal passageways. The terminals each have a

tail extending out of the rear side of the connector body. The wire management includes a body portion having an end face, and the body portion adapted to support the tail of each of the terminals. The wire management member comprises a projection rod projecting from the end face of the body portion, the projection rod being received within the connector body cavity.

In rejecting representative claim 1, the Examiner concedes that Yang does not disclose a cavity in the connector body between a front side and a rear side of the connector body, nor does Yang disclose tails of the terminals extending out of the rear side of the connector body. In order to overcome the shortcomings of Yang, the Examiner directs the applicant to Yoshihito et al., and asserts that the shortcomings of Yang are overcome by the teachings of Yoshihito et al. This is not so.

Despite characterizations to the contrary, Yoshihito et al. does not overcome the shortcomings of Yang. Rather, Yoshihito et al. appears to discloses a pair of connectors, one of the connectors 20 including a plurality of terminals 10, and a mating connector 40, the mating connector being used to mate a flat flexible cable to the connector 20. The mating connector 40 is received within a mating opening in the front face of the connector 20. Thus, Yoshihito et al. has the following failings. First, Yoshihito et al. does not disclose a connector having terminal tails extending out of the rear side of the connector body. Rather, the terminals 10 appear to be of a length shorter than the front to rear length of connector 20. Moreover, even if one were to assume that the tails of terminals 10 extend beyond the rear side of the connector 20, there is not a wire management member that includes a body portion adopted to support the tails of the terminals 10. Rather, what the Examiner has characterized as the wire management member is 41, and that structure mates with the mating opening in the front face of connector 20, and not the rear end of the connector 20. Therefore, even if one were to combine the Yang and Yoshihito et al. references as suggested by the Examiner,

the suggested combination fails to establish a *prima facie* case of obviousness as to representative claim 1. Accordingly, for at least the above reasons, the Examiner erred in rejecting claims 1-15 and 17-22 under 35 U.S.C. § 103(a) as being unpatentable over Yang in view of Yoshihito et al.

#### IX. CONCLUSION

For the above reasons, it is respectfully submitted that the appealed claims do define an electrical connector (or a wire management member or a cable assembly) that is not disclosed in or suggested by the relied upon references, whether taken alone or combined as suggested by the Examiner. Accordingly, it is respectfully submitted that the Examiner's rejection of the claims on appeal should not be sustained and therefore should be reversed.

Respectfully submitted, MOLEX INCORPORATED

Date: Soplember 11, 2003

By:

Robert J. Ze**itl**er //

Registration No. 37,973 Attorney of Record

Mailing Address:

MOLEX INCORPORATED 2222 Wellington Court

Lisle, Illinois 60532

Tel.: (630) 527-4884 Fax.: (630) 416-4962

## IN UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants:

**Chun-Hsiang Chiang** 

Application:

WIRE MANAGEMENT MEMBER AND ELECTRIC CABLE

CONNECTOR WITH WIRE MANAGEMENT MEMBER

Serial No.:

09/960,172

Filing Date:

September 21, 2001

Art Unit:

2833

Examiner:

Edwin A. Leon

Case:

A1-082 US

#### **APPENDIX A**

1. An electrical connector for use with an electrical cable having a plurality of wires, the electrical connector comprising:

a connector body, the connector body comprising a front side, a rear side, a cavity between said front side and said rear side, a plurality of terminal passageways, and a plurality of terminals respectively received within the terminal passageways, the terminals each having a tail extended out of said rear side of the connector body; and

a wire management member, the wire management including a body portion having an end face, said body portion adapted to support the tail of each of the terminals, the wire management member comprising a projection rod projecting from said end face of the body portion, the projection rod being received within the connector body cavity.

- 2. The electrical connector of claim 1 wherein the wire management member body portion includes a plurality of terminal grooves, the terminal grooves being adapted to receive the tail of each of the terminals.
- 3. The electrical connector of claim 1 wherein the wire management member body portion includes a plurality of wire grooves, the wire grooves adapted to receive the wires of the cable for enabling the wires of the cable to be respectively electrically soldered to the tail of each of the terminals.

- 4. The electrical connector of claim 1 wherein the cavity is contiguous with one of the plurality of terminal passageways.
- 5. The electrical connector of claim 2 wherein the wire management member comprises a plurality of ribs respectively disposed between two adjacent terminal grooves above the elevation of the tail of the terminals.
- 6. The electrical connector of claim 1 wherein the wire management member body portion comprises a plurality of platforms, at least one of the platforms comprising a plurality of terminal grooves adapted to receive the tail of each of the terminals.
- 7. The electrical connector of claim 6 wherein at least one of the platforms comprises a plurality of wire grooves adapted to receive the wires of the cable.
- 8. The electrical connector of claim 6 wherein at least one of the platforms includes a plurality of ribs respectively disposed between two adjacent terminal grooves above the elevation of the tail of the terminals.
- 9. A cable assembly, the assembly comprising:

a connector body, the connector body comprising a front side, a rear side, a cavity between said front side and said rear side, a plurality of terminal slots, and a plurality of terminals respectively mounted in the terminal slots, the terminals each having a tail extended out of said rear side of the connector body;

a cable, the cable comprising a plurality of wires respectively electrically soldered to the tail of each of the terminals; and

a wire management member, the wire management member having an end face and being adapted to support the tail of each of the terminals, the wire management member comprising a projection rod projecting from said end face of the wire management member, the projection rod being received within the connector body cavity.

10. The cable assembly of claim 9 wherein the wire management member includes a

plurality of terminal grooves, the terminal grooves being adapted to receive the tail of each of the terminals, and wherein a plurality of ribs are respectively disposed between two adjacent terminal grooves above the elevation of the tail of the terminals.

- 11. The cable assembly of claim 9 wherein the wire management member includes a plurality of wire grooves, the wire grooves adapted to receive the wires of the cable for enabling the wires of the cable to be respectively electrically soldered to the tail of each of the terminals.
- 12. The cable assembly of claim 9 wherein the wire management member comprises a plurality of platforms, each of the platforms comprising a plurality of terminal grooves adapted to receive the tail of each of the terminals.
- 13. The cable assembly of claim 12 wherein at least one of the platforms comprises a plurality of wire grooves adapted to receive the wires of the cable.
- 14. The cable assembly of claim 12 wherein at least one of the platforms includes a plurality of ribs respectively disposed between two adjacent terminal grooves above the elevation of the tail of the terminals.
- 15. A wire management member for use with an electrical connector having a connector body, the connector body comprising a front side, a rear side, a cavity between said front side and said rear side, a plurality of terminal slots, and a plurality of terminals respectively mounted in the terminal slots, the terminals each having a tail extended out of said rear side of the connector body, the wire management member comprising:

a body portion, the body portion having an end face, said body portion including a plurality of terminal grooves, the terminal grooves being adapted to receive the tail of each of the terminals; and

a projection rod, the projection rod projecting from said end face of the body portion, the projection rod being adapted to be received within the connector body cavity.

17. The wire management member of claim 15 wherein the body portion includes a plurality of wire grooves, the wire grooves adapted to receive wires of a cable for enabling the

wires of the cable to be respectively electrically soldered to the tail of each of the terminals.

- 18. The wire management member of claim 15 wherein the wire management member comprises a plurality of ribs respectively disposed between two adjacent terminal grooves above the elevation of the tail of the terminals.
- 19. The wire management member of claim 15 wherein the body portion comprises a plurality of platforms, at least one of the platforms comprising a plurality of terminal grooves adapted to receive the tail of each of the terminals.
- 20. The wire management member of claim 19 wherein at least one of the platforms comprises a plurality of wire grooves adapted to receive wires of a cable.
- 21. An electrical connector for use with an electrical cable having a plurality of wires, the electrical connector comprising:

a connector body, the connector body comprising a front side, a rear side, a cavity between said front side and said rear side, a plurality of terminal passageways, and a plurality of terminals respectively received within the terminal passageways, the terminals each having a tail extended out of said rear side of the connector body; and

a wire management member, the wire management member including a body portion having an end face, said body portion adapted to support the tail of each of the terminals and at least one wire groove for receiving at least one of the plurality of wires, the wire management member comprising a projection rod projecting from said end face of the body portion, the projection rod being received within the connector body cavity.

22. An electrical connector as defined in claim 1, wherein the cavity is provided below the plurality of terminal passageways.

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## **TRANSMITTAL for FY 2002**

Patent fees are subject to annual revision.

09/960,172 **Application Number** 09/21/2001 Filing Date Chun-Hsiang Chiang First Named Inventor E. Leon **Examiner Name** 2833 **Group Art Unit** 

Complete if Known

A1-052

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Account Name Molex Incorporated	105 130 205 65 Surcharge - late filing fee or oath					
Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17	127 50 227 25 Surcharge - late provisional filing fee or cover sheet					
Applicant claims small entity status.	139 130 139 130 Non-English specification					
See 37 CFR 1.27	147 2,520 147 2,520 For filing a request for ex parte reexamination					
2. Payment Enclosed:	112 920* 112 920* Requesting publication of SIR prior to					
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FEE CALCULATION	Examiner action					
1. BASIC FILING FEE	115 110 215 55 Extension for reply within first month					
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114 160 214 80 Provisional filing fee	121 280 221 140 Request for oral hearing					
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2. EXTRA CLAIM FEES Fee from	141 1,280 241 640 Petition to revive - unintentional 142 1,280 242 640 Utility issue fee (or reissue) 143 460 243 230 Design issue fee 144 620 244 310 Plant issue fee	72				
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Code (\$) Code (\$)	581 40 581 40 Recording each patent assignment per property (times number of properties)					
103 18 203 9 Claims in excess of 20	146 740 246 370 Filing a submission after final rejection					
102 84 202 42 Independent claims in excess of 3 104 280 204 140 Multiple dependent claim, if not paid	(37 CFR § 1.129(a))					
109 84 209 42 ** Reissue independent claims	149 740 249 370 For each additional invention to be					
over original patent	examined (37 CFR § 1.129(b))					
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